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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,820	09/11/2003	Kuldipsingh A. Pabla	5681-69600	5945

58467 7590 04/08/2008

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AUSTIN, TX 78767

EXAMINER	
PARK, JEONG S	
ART UNIT	PAPER NUMBER
2154	

MAIL DATE	DELIVERY MODE
04/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/659,820	PABLA ET AL.	
	Examiner	Art Unit	
	JEONG S. PARK	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/15/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to communications filed on January 15, 2008.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-7, 10, 11, 14, 15, 18-24 and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doyle (U.S. Patent No. US 6,009,455) in view of IEEE Conference Proceeding (hereinafter IEEE)(When Peer-to-Peer comes Face-to-Face: Collaborative Peer-to-Peer Computing in Mobile Ad hoc Networks by Kortuem et al., published in First International Conference on Peer-to-Peer Computing proceedings, August 2001, Pages: 75-91), and further in view of Kampe et al. (hereinafter Kampe)((U.S. Pub. No. 2002/0042693 A1).

Regarding claims 1, 19 and 27, Doyle discloses as follows:

A grid computing system (equivalent to distributed computing system, see, e.g., Abstract) comprising;

A grid comprising one or more compute nodes (master computer 5 in figure 2a and client computers 11 in figure 2a);

A master node (master computer, reference character 5 in figure 2a) configured to manage the grid (master computer executes a master control program, reference character 10 in figure 2a, to mange the distributed computation between job

request/output means and client computers, see, e.g., col. 3, lines 42-57 and figure 2a);

A node sending the master node information about the node (client control program, reference character 12 in figure 2a, sends to the master computer the existence and configuration of various predetermined resources on the client computer, see, e.g., col.3, line 64 to col. 4, line 10);

Wherein the master node is further configured to send grid configuration information to the node (job computation module, 14 in figure 2c, determine which mode the program should operate based on the job request message from job request means, 1 in figure 2c, and sends it to the available clients, see, e.g., col. 5, line 64 to col. 6, line 16); and

The node is further configured to self-configure as a compute node in the grid in accordance with the grid configuration information (availability algorithm, 13 in figure 2b, concludes the respective client computer as available clients and qualification algorithm, 45 in figure 2b, determines the available clients as a candidate to participate in a distributed computation, see, e.g., col. 4, lines 11-27).

Doyle does not disclose of discovering the master node in accordance with one or more peer-to-peer platform protocol.

IEEE discloses as follows:

Discovering neighboring nodes in peer-to-peer system (a mobile peer-to-peer system in ad-hoc network of discovering neighboring devices automatically, see, e.g., page 82, section 3.3.4: Resource Discovery);

Presence protocol (Proem) contains messages that allow peers to announce

their presence and the availability of entities throughout a network (see, e.g., page 85, section 4.2.3: Protocols and Messages); and

Proem is a general-purpose platform for building arbitrary mobile peer-to-peer applications (see, page 87, section 5.1: Proem and Ad hoc Networks).

Therefore, IEEE discloses discovering of all neighboring devices (applicant's nodes) in accordance with Proem peer-to-peer protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Doyle to include the peer-to-peer protocol as taught by IEEE in order to discover all neighboring nodes, which have not been connected as a fixed network or configured, with the master node to participate in distributed or grid computing system.

Doyle in view of IEEE does not disclose joining a node into an existing grid even though Doyle implicitly discloses using a preconfigured grid between a master and a plurality of client computers after grid configuration between nodes.

Kampe further discloses as followings:

A method of joining a cluster (equivalent to applicant's grid)(see, e.g., page 2, paragraph [0039]-[0044] and figure 3);

One or more compute nodes already configured to participate in the grid (peer entities already in the cluster are detected, see, e.g., step 120 in figure 3, page 3, paragraph [0041]);

A node is not configured to participate in the grid as a compute node (a node attempts to join a cluster at step 110 in figure 3, page 3, paragraph [0039]);

Discovering the master node in accordance with one or more peer-to-peer platform protocols (a node attempts to join the cluster search for the existing master node at step 150 in figure 3, see, e.g., page 3, paragraph [0041]-[0042]);

In response to said discovering the master node, send information about the node to the discovered master node in accordance with the one or more peer-to-peer platform protocols (the node attempts to join a cluster sends node information (see, e.g., page 2, paragraph [0028]) to the master node which maintains a cluster configuration repository, see, e.g., page 2, paragraph [0028]); and

The master node is further configured to send grid configuration information to the node (a node attempts to join the cluster obtains its configuration data from the master cluster node, see, e.g., page 3, paragraph [0044]).

It would be obvious to combine Kampe with Doyle in view of IEEE in order for a node to automatically join the existing grid and configure itself from the discovered master node which maintains grid configuration information.

Regarding claim 2, Doyle discloses as follows:

The node comprises a bootstrapping mechanism (the primary function of the availability algorithm, 13 in figure 2a, is to notify the master computer that the client is available, see, e.g., col. 3, lines 58-61) configured to discover the master node and to send information about the node to the discovered master node in accordance with the one or more peer-to-peer platform protocols at startup of the node (see, e.g., col. 4, line 14-20).

Regarding claims 3, 20, and 28, Doyle discloses as follows:

The grid computing system or a method as recited in claim 1, wherein the node was previously configured as a compute node (each selected client), and wherein, to self-configure as a compute node in the grid in accordance with the grid configuration information, the node is further configured to update configuration (segment group package, 20 in figure 2d) of the node as a compute node in accordance with the grid configuration information (each selected client is downloaded with the job request files, 18 in figure 2d, included in the segment group package from the master control program, 46 in figure 2d, see, e.g., col.6 lines 21-26 and figure 2d).

Regarding claims 4, 21, and 29, Doyle discloses as follows:

The information about the node includes compute node configuration information for the node (client control program, reference character 12 in figure 2a, sends to the master computer the existence and configuration of various predetermined resources on the client computer, see, e.g., col.3, line 64 to col. 4, line 10);

The master node is further configured to determine from the compute node configuration information that the compute node configuration needs to be updated (qualification algorithm, 45 in figure 2b, in the master control program determines if an available client is a candidate to participate in a distributed computation, see, e.g., col. 4, lines 20-23); and

The grid configuration information sent to the node includes update information for the compute node configuration (each selected client is downloaded with the job request files, 18 in figure 2d, included in the segment group package from the master control program, 46 in figure 2d, see, e.g., col.6 lines 21-26 and figure 2d).

Regarding claims 5, 22, and 30, Doyle discloses as follows:

The node is further configured to send the master node notification (timely status message) that the node is leaving the grid (if the master control program does not receive timely status message from a selected client, it will deem that selected client off-line, see, e.g., col. 7, lines 8-12).

Regarding claims 6, 23, and 31, Doyle discloses as follows:

The master node is further configured to submit a job to the node for execution in accordance with the one or more peer-to-peer platform protocols (each selected client is downloaded with the job request files, 18 in figure 2d, included in the segment group package from the master control program, 46 in figure 2d, see, e.g., col.6 lines 21-26 and figure 2d);

To detect that the node is no longer participating as a compute node in the grid in accordance with the one or more peer-to-peer platform protocols (if the master control program does not receive timely status message from a selected client, it will deem that selected client off-line, see, e.g., col. 7, lines 8-12); and

To resubmit the job to another compute node of the grid for execution in accordance with the one or more peer-to-peer platform protocols (the master control program does not receive timely status message from a selected client, it will deem that selected client off-line and reassign the associated segment group package to another available computer, see, e.g., col. 7, lines 8-12).

Regarding claims 7, 11, 24, and 32, Doyle discloses as follows:

The grid computing system or a method further comprises a job submitter node

(job request means, reference character 1 in figure 2a, see, e.g., col. 3, lines 9-12);

The master node is further configured to receive a job from the job submitter node (see, e.g., col. 4, lines 28-40 and figure 2c);

To distribute the job to the compute node for execution (each selected client is controlled by sending commands and files from the master control program to the client control program over the network, see, e.g., col. 6, lines 17-29 and figure 2d);

To receive results of the execution from the compute node (the output files from the two selected clients are uploaded to the master computer, see, e.g., col. 6, lines 56-60 and figure 2e); and

To send the results to the job submitter node (job output means, reference character 3 in figure 2a, see, e.g., col. 3, lines 20-23)(the master control program then forwards these formatted files to the job output means, see, e.g., col. 7, lines 25-36 and figure 2f).

Regarding claim 10, Doyle discloses as follows:

A grid computing system comprising a plurality of nodes (client computer, reference character 11 in figure 2a);

A master node configured to communicate with the one or more of the plurality of nodes in accordance with one or more peer-to-peer platform protocols (master computer executes a master control program, reference character 10 in figure 2a, to mange the distributed computation between job request/output means and client computers, see, e.g., col. 3, lines 42-57 and figure 2a)

To configure the one or more of the plurality of nodes to participate as compute

nodes in the grid computing system (qualification algorithm, 45 in figure 2b, in the master control program determines if an available client is a candidate to participate in a distributed computation, see, e.g., col. 4, lines 20-23); and

To submit jobs to the compute nodes for execution (each selected client is downloaded with the job request files, 18 in figure 2d, included in the segment group package from the master control program, 46 in figure 2d, see, e.g., col.6 lines 21-26 and figure 2d).

Doyle does not disclose one or more peer-to-peer platform protocol even though it is inherent to have any kind of protocol between the master node and the plurality of nodes.

IEEE discloses as follows:

A mobile peer-to-peer system in ad-hoc network of discovering neighboring devices automatically (see, e.g., page 82, section 3.3.4: Resource Discovery);

Presence protocol (Proem) contains messages that allow peers to announce their presence and the availability of entities throughout a network (see, e.g., page 85, section 4.2.3: Protocols and Messages); and

Proem is a general-purpose platform for building arbitrary mobile peer-to-peer applications see, page 87, section 5.1: Proem and Ad hoc Networks).

Therefore, IEEE discloses discovering of all neighboring devices (applicant's nodes) in accordance with Proem peer-to-peer protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Doyle to include the peer-to-peer protocol as taught by IEEE in

order to discover all neighboring nodes, which have not been connected as a fixed network or configured, with the master node to participate in distributed or grid computing system.

Doyle in view of IEEE does not disclose joining a node into an existing grid even though Doyle implicitly discloses using a preconfigured grid between a master and a plurality of client computers after grid configuration between nodes.

Kampe further discloses as followings:

A method of joining a cluster (equivalent to applicant's grid)(see, e.g., page 2, paragraph [0039]-[0044] and figure 3);

One or more compute nodes already configured to participate in the grid (peer entities already in the cluster are detected, see, e.g., step 120 in figure 3, page 3, paragraph [0041]);

A node is not configured to participate in the grid as a compute node (a node attempts to join a cluster at step 110 in figure 3, page 3, paragraph [0039]);

Discovering the master node in accordance with one or more peer-to-peer platform protocols (a node attempts to join the cluster search for the existing master node at step 150 in figure 3, see, e.g., page 3, paragraph [0041]-[0042]);

In response to said discovering the master node, send information about the node to the discovered master node in accordance with the one or more peer-to-peer platform protocols (the node attempts to join a cluster sends node information (see, e.g., page 2, paragraph [0028]) to the master node which maintains a cluster configuration repository, see, e.g., page 2, paragraph [0028]); and

The master node is further configured to send grid configuration information to the node (a node attempts to join the cluster obtains its configuration data from the master cluster node, see, e.g., page 3, paragraph [0044]).

It would be obvious to combine Kampe with Doyle in view of IEEE in order for a node to automatically join the existing grid and configure itself from the discovered master node which maintains grid configuration information.

Regarding claim 14, Doyle discloses as follows:

A master computer (5 in figure 2a) and client computers (11 in figure 2a) used in the distributed computing system which inherently include a memory and a processor;

The master node is configured to manage a grid comprising one or more compute nodes (job computation module, 14 in figure 2c, determine which mode the program should operate based on the job request message from job request means, 1 in figure 2c, and sends it to the available clients, see, e.g., col. 5, line 64 to col. 6, line 16);

In response to said discovering the master node, send information about the node to the discovered master node in accordance with the one or more peer-to-peer platform protocols (client control program, reference character 12 in figure 2a, sends to the master computer the existence and configuration of various predetermined resources on the client computer, see, e.g., col.3, line 64 to col. 4, line 10);

Receive grid configuration information from the master node in accordance with the one or more peer-to-peer platform protocols(client control program, reference character 12 in figure 2a, sends to the master computer the existence and configuration

of various predetermined resources on the client computer, see, e.g., col.3, line 64 to col. 4, line 10); and

In response to said grid configuration information, self-configure as a compute node in the grid in accordance with the grid configuration information (availability algorithm, 13 in figure 2b, concludes the respective client computer as available clients and qualification algorithm, 45 in figure 2b, determines the available clients as a candidate to participate in a distributed computation, see, e.g., col. 4, lines 11-27).

Doyle does not disclose of discovering the master node in accordance with one or more peer-to-peer platform protocol.

IEEE discloses as follows:

A mobile peer-to-peer system in ad-hoc network of discovering neighboring devices automatically (see, e.g., page 82, section 3.3.4: Resource Discovery);

Presence protocol (Proem) contains messages that allow peers to announce their presence and the availability of entities throughout a network (see, e.g., page 85, section 4.2.3: Protocols and Messages); and

Proem is a general-purpose platform for building arbitrary mobile peer-to-peer applications 9see, page 87, section 5.1: Proem and Ad hoc Networks).

Therefore, IEEE discloses discovering of all neighboring devices (applicant's nodes) in accordance with Proem peer-to-peer protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine Doyle to include the peer-to-peer protocol as taught by IEEE in order to discover all neighboring nodes, which have not been connected as a fixed

network or configured, with the master node to participate in distributed or grid computing system.

Doyle in view of IEEE does not disclose joining a node into an existing grid even though Doyle implicitly discloses using a preconfigured grid between a master and a plurality of client computers after grid configuration between nodes.

Kampe further discloses as followings:

A method of joining a cluster (equivalent to applicant's grid)(see, e.g., page 2, paragraph [0039]-[0044] and figure 3);

One or more compute nodes already configured to participate in the grid (peer entities already in the cluster are detected, see, e.g., step 120 in figure 3, page 3, paragraph [0041]);

A node is not configured to participate in the grid as a compute node (a node attempts to join a cluster at step 110 in figure 3, page 3, paragraph [0039]);

Discovering the master node in accordance with one or more peer-to-peer platform protocols (a node attempts to join the cluster search for the existing master node at step 150 in figure 3, see, e.g., page 3, paragraph [0041]-[0042]);

In response to said discovering the master node, send information about the node to the discovered master node in accordance with the one or more peer-to-peer platform protocols (the node attempts to join a cluster sends node information (see, e.g., page 2, paragraph [0028]) to the master node which maintains a cluster configuration repository, see, e.g., page 2, paragraph [0028]); and

The master node is further configured to send grid configuration information to

the node (a node attempts to join the cluster obtains its configuration data from the master cluster node, see, e.g., page 3, paragraph [0044]).

It would be obvious to combine Kampe with Doyle in view of IEEE in order for a node to automatically join the existing grid and configure itself from the discovered master node which maintains grid configuration information.

Regarding claim 15, Doyle discloses a bootstrap mechanism (availability algorithm, 13 in figure 2a) executes the program instructions.

Regarding claim 18, Doyle-IEEE in view of Kampe disclose all the limitations of claim as presented above regarding claims 1, 10 and 14

4. Claims 8, 12, 16, 25, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doyle (U.S. Patent No. US 6,009,455), IEEE Conference Proceeding (hereinafter IEEE)(When Peer-to-Peer comes Face-to-Face: Collaborative Peer-to-Peer Computing in Mobile Ad hoc Networks by Kortuem et al., published in First International Conference on Peer-to-Peer Computing proceedings, August 2001, Pages: 75-91) and Kampe et al. (hereinafter Kampe)((U.S. Pub. No. 2002/0042693 A1) as applied to claims 1, 10, 14, 19, and 27 above, and further in view of Sun Cluster Grid architecture (hereinafter Sun Cluster)(Sun Cluster Grid Architecture- a Technical White Paper Describing the Foundation of Sun Grid Computing, published by Sun Microsystems on May 2002).

Regarding claims 8, 12, 16, 25, and 33, Doyle-IEEE-Kampe disclose all the limitations of claims as presented above except for being configured the grid computing system according to Sun Cluster Grid architecture

Sun Cluster discloses Sun Cluster Grid architecture provides the foundation for building and deploying a Cluster Grid system (see, e.g., pages 20-21).

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify Doyle-IEEE-Kampe to include Sun Cluster Grid architecture as the grid computing system as taught by Sun Cluster in order to provide scalable and reliable foundation for building and deploying a successful Grid system.

5. Claims 9, 13, 17, 26, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doyle (U.S. Patent No. US 6,009,455), IEEE Conference Proceeding (hereinafter IEEE)(When Peer-to-Peer comes Face-to-Face: Collaborative Peer-to-Peer Computing in Mobile Ad hoc Networks by Kortuem et al., published in First International Conference on Peer-to-Peer Computing proceedings, August 2001, Pages: 75-91) and Kampe et al. (hereinafter Kampe)((U.S. Pub. No. 2002/0042693 A1) as applied to claims 1, 10, 14, 19, and 27 above, and further in view of JXTA Chapter 1 (JXTA, by Brendon J. Wilson, published by New Riders Publishing on June 2002).

Regarding claims 9, 13, 17, 26, and 34, Doyle-IEEE-Kampe disclose all the limitations of claims as explained above except for using JXTA protocols as the peer-to-peer platform protocols.

JXTA Chapter 1 defines JXTA protocols are language-independent, defining a set of XML messages to coordinate some aspect of P2P networking (see, e.g., pages 13-14).

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify Doyle-IEEE-Kampe to include JXTA protocols as the peer-to-peer

platform protocols as taught by JXTA Chapter 1 in order to simplify the implementation of peer-to-peer networking solutions on any devices.

Response to Arguments

6. Applicant's arguments filed 1/15/2008, with respect to claim 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEONG S. PARK whose telephone number is (571)270-1597. The examiner can normally be reached on Monday through Friday 7:00 - 3:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeong S Park/
Examiner, Art Unit 2154

April 3, 2008

/Joseph E. Avellino/
Primary Examiner, Art Unit 2146